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Recycling Electricity in Greenhouses and Similar Light-Intensive Spaces

In light-intensive environments such as greenhouses, electricity can be recycled using light panels. When properly positioned, the use of light panels has minimal negative impact on other activities.

In greenhouses, for instance, a significant amount of light is required nearly around the clock and throughout the year, as natural light alone is insufficient for efficient plant growth. Unfortunately, much of the produced light and the energy invested in it goes to waste. Currently, active surplus light utilisation is not widely implemented on a large scale. Light recycling offers a new opportunity to significantly enhance energy efficiency and, in the next phase, create a market for light panels optimised for greenhouse wavelengths. Similarly, panels and recycling can be applied in other large, well-lit spaces. Panels tailored for indoor use mainly require less durability than those designed for outdoor use, which brings cost-effectiveness into play.

Light panels can be placed, continuing with the example of greenhouses, on interior walls where they receive ample light and where wall surface area is abundant. These panels do not disrupt daily activities and do not prevent the utilisation of natural light. In a later phase, greenhouse designs can be further developed to optimise energy recovery even more efficiently. In the initial stage, commercially available panels can be installed in test facilities, and placement locations can be chosen according to the conditions. By optimising panels for greenhouse wavelengths and considering the placement and quantity of light panels, as well as the necessary technology, even better results can be achieved.

There are several compelling arguments in favour of this innovation:

- Significant energy savings are achieved.
- Positive environmental impacts are realised.
- Sustainability and eco-friendliness can be highlighted in product marketing.
- Beyond greenhouses, numerous other spaces can benefit from these panels.
- There is potential to create an entirely new industry for harnessing electricity from light on a large scale.
- This innovation is based on original ideas and discussions held within greenhouse settings.

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